

WA5MNAUN5

Understanding number

Core + Challenge

NAPLAN-style

Factors

I can use arrays to find all the factors of a number and explain how I know I have them all.

Name: _____ Date: _____ Score: _____ / 56

Key idea

A **factor** divides a number exactly, with nothing left over. Every **array** for a number shows a **factor pair**.

32 makes the arrays 1×32 , 2×16 and 4×8 . So the factors of 32 are 1, 2, 4, 8, 16 and 32.

Work **in order**: try 1, 2, 3, ... 3 does not work. Stop when the factor pairs start to repeat.

A **factor rainbow** writes the factors in order and joins each pair: 1 and 32, 2 and 16, 4 and 8.

2×16



4×8



Factor rainbow for 32



A

Warm up draw arrays and find factor pairs

/ 16 marks

Write the factor pair and the number shown by each array. 1 mark each.

1 $\square \times \square = \square$



2 $\square \times \square = \square$



3 $\square \times \square = \square$



4 $\square \times \square = \square$



Draw **every** rectangular array for the number on the grid. (2×3 and 3×2 count as the same array.) 1 mark each.

5 Every array for 6

6 Every array for 10

8 Every array for **15**

9 Is **4** a factor of 30?

10 Is **7** a factor of 42?

11 Is **9** a factor of 45?

12 Is **6** a factor of 16?

13 Factors of 8

14 Factors of 20

15 Factors of 9

16 Factors of 14

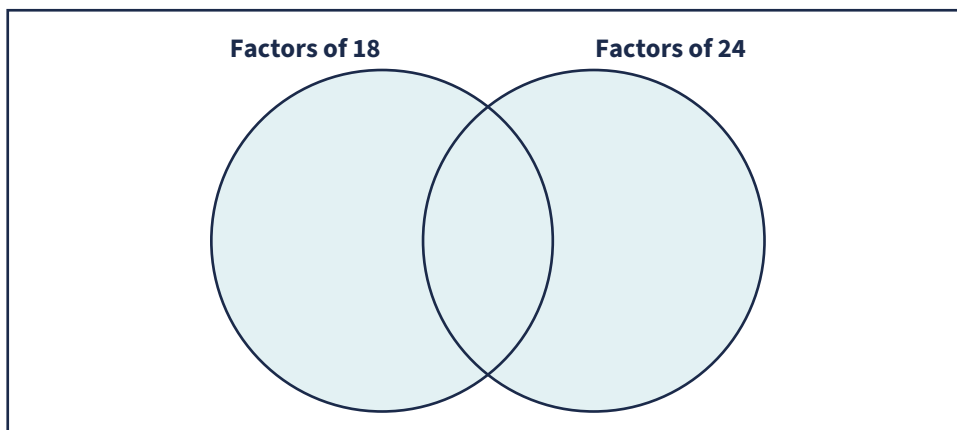
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- 2 Complete the factor rainbow for **40**. You may not need every box. [2 marks]

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- 3 Write the factors of **18** and of **24** in the Venn diagram. What is the **greatest** factor they have in common? [3 marks]

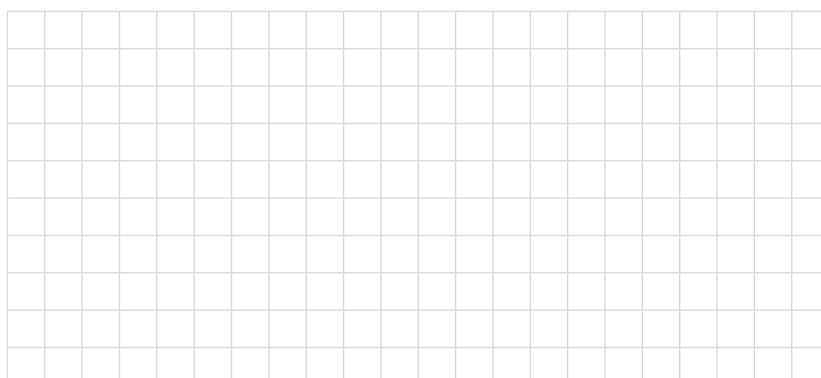


Answer: _____

- 4 A coach has **28** netball players. She wants equal teams, with **more than one** team and **more than one** player in each team. List **all** the team sizes she could use. [2 marks]

Answer: _____

- 5 Ava has **20** square tiles. She makes a rectangle using **all** of them. Draw every different rectangle she could make on the grid. [2 marks]



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- 6 Circle the number that has **exactly three** factors. Write its factors. [2 marks]

6

9

10

15

Answer: _____

- 7 Fill in the missing factor in each pair. [2 marks]

a) $72 = 8 \times \square$ b) $72 = \square \times 24$ c) $72 = 6 \times \square$

- 8 Is **7** a factor of **84**? Explain how you know. You may use an array or a division. [2 marks]

Answer: _____

- 9 Priya has **30** lollies and **45** stickers. She makes party bags that are all the **same**, with nothing left over. **a)** What is the **largest** number of bags she can make? **b)** How many lollies and stickers go in each bag? [3 marks]

Answer: _____

C Think it through *explain your thinking*

/ 10 marks

- 1 Jack says, “18 has four factors: 2, 3, 6 and 9.” Do you agree with Jack? Explain. [2 marks]

- 2 **True or false?** “A bigger number has more factors than a smaller number.” Give an example to explain. [2 marks]

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- 3 **Always, sometimes or never true?** “A number has an even number of factors.” [2 marks]

Circle one and give examples.

Always / **Sometimes** / **Never**

- 4 Which number is the **odd one out**? 12, 18, 20, 30. Explain. [2 marks]

- 5 Explain how you can be sure you have found **all** the factors of **48**. List them. [2 marks]

D Challenge *stretch yourself*

/ 9 marks

- 1 Find **all** the numbers from 1 to 30 that have **exactly six** factors. Show the factors of each. [3 marks]

Answer: _____

- 2 **Mystery number.** I am between 20 and 50. **4** and **6** are both factors of me, but **8** is not. **a)** What number am I? **b)** List all my factors. **c)** Why do I have an **odd** number of factors? [3 marks]

Answer: _____

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- 3 The school hall has **60** chairs set out in equal rows. There must be **at least 5 rows** and **at least 5 chairs** in each row. List **all** the ways. (5 rows of 12 is different from 12 rows of 5.) [3 marks]

Answer: _____

How did I go?Warm up ____ / 16 Practise ____ / 21 Think it through ____ / 10 Challenge ____ / 9 **Total ____ / 56**Want help with Year 5 maths? Our tutors make it click. **Book a free trial class at [edulift.com.au](https://www.edulift.com.au)**